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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/559,606	12/01/2005	Rintaro Takita	36856.1393	1512

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EXAMINER

DOUGHERTY, THOMAS M

ART UNIT	PAPER NUMBER
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2834

NOTIFICATION DATE	DELIVERY MODE
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07/14/2008

ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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Office Action Summary	Application No. 10/559,606	Applicant(s) TAKITA, RINTARO	
	Examiner Thomas M. Dougherty	Art Unit 2834	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 01 December 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 6-12 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 6-12 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 01 December 2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>1205</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 6-12 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. The claims describe the characteristics of the plate-shaped element but never cite the material of that element. A routineer in the art would have no idea whether or not he would be infringing on the language of a patent that had the Applicants' language since any material that meets the characteristics is applicable.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 6-12, as best understood, are rejected under 35 U.S.C. 103(a) as being unpatentable over Kaida (US 5,302,880) in view of Shinoda (JP 57-60717). Kaida shows (fig. 1) an electronic component device comprising: a rectangular plate-shaped element (1) including a functional part and a first frame-shaped electrode (35) surrounding the functional part, wherein, as best understood, the coefficient of linear expansion in the x direction along a side of the rectangle is different from the coefficient of linear expansion in the y direction orthogonal to the x direction in the rectangular plane (note that as Kaida shows the claimed structural features, the functionality is

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regarded as being met as well); a substrate (38) including a second frame-shaped electrode (36) arranged on a front face of the substrate (38) at a position so as to correspond to the first frame-shaped electrode (35); and each of the first frame-shaped electrode (35), the second frame-shaped electrode (36), includes a strip-shaped portion extending in the x direction and a strip-shaped portion extending in the y direction; the element (1) and the substrate are bonded together, the functional part provided on the element (1) is hermetically sealed in a space formed between the element (1) and the substrate (38); and when the difference in expansion in the x direction between the element and the substrate is represented by Q_x and the difference in expansion in the y direction between the element and the substrate is represented by Q_y , as best understood, in each of the first frame-shaped electrode (35), the second frame-shaped electrode (36), a width of the strip-shaped portion extending in the direction having the larger difference in expansion is smaller than a width of the strip-shaped portion extending in the direction having the smaller difference in expansion.

As best understood, when the coefficient of linear expansion in the x direction of the substrate is represented by A_x , the coefficient of linear expansion in the y direction of the substrate is represented by A_y , the coefficient of linear expansion in the x direction of the element is represented by B_x , the coefficient of linear expansion in the y direction of the element is represented by B_y , the length of the external side of the strip-shaped portion extending in the x direction of the first and second frame-shaped electrodes is represented by dl_x , the length of the external side of the strip-shaped portion extending in the y direction of the first and second frame-shaped electrodes is

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represented by dl_y , the difference Q_x in expansion is represented by $Q_x = |A_x - B_x| \times dl_x$ (mm/°C), and the difference Q_y in expansion is represented by $Q_y = |A_y - B_y| \times dl_y$ (mm/°C), then the larger difference in expansion is about 2.2×10^{-5} (mm/°C) or less.

As best understood, when the ratio of flexural rigidity in the x direction between the element and the substrate is represented by R_x and the ratio of flexural rigidity in the y direction between the element and the substrate is represented by R_y , the larger ratio of the flexural rigidity ratios R_x and R_y is about 1.2 or less.

The element (1) is a high frequency element.

Kaida, as noted, shows (fig. 1) an electronic component device comprising: a rectangular plate-shaped element (1) including a functional part and a first frame-shaped electrode (35), wherein the coefficient of linear expansion in the x direction along a side of the rectangle is different from the coefficient of linear expansion in the y direction orthogonal to the x direction in the rectangular plane; and a substrate (38) including a second frame-shaped electrode (36); wherein each of the first frame-shaped electrode (35) and the second frame-shaped electrode (36) includes a strip-shaped portion extending in the x direction and a strip-shaped portion extending in the y direction; the element and the substrate are bonded together with the functional part provided on the element hermetically sealed (col. 8, lines 10-13) in a space formed between the element (1) and the substrate (38); and when the difference in expansion in the x direction between the element and the substrate is represented by Q_x and the difference in expansion in the y direction between the element and the substrate is represented by Q_y , in each of the first frame-shaped electrode and the second frame-

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shaped electrode, a width of the strip-shaped portion extending in the direction having the larger difference in expansion is smaller than a width of the strip-shaped portion extending in the direction having the smaller difference in expansion.

Kaida does not note a solder sealing frame or a surface acoustic wave device.

Kusabiraki et al. teach (ABSTRACT) use of solder for sealing an electronic package containing a piezoelectric resonator, which description includes both high frequency devices and surface acoustic wave devices.

Kusabiraki et al. don't note electrode frames or note the thickness of the solder sealing frame is about 18 μm or more.

It would have been obvious to one having ordinary skill in the art to employ the solder material of Kusabiraki et al. in the device of Kaida since this is an excellent design to allay problems of thermal shock as noted in the Abstract.

Concerning the thickness of the solder in the combined device, it would have been obvious to one having ordinary skill in the art to employ a thickness of 18 μm or more for the solder layer in a combined device of Kusabiraki et al. and Kaida since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. *In re Aller*, 105 USPQ 233.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. The remaining prior art cited reads on aspects of the claimed invention.

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Direct inquiry to Examiner Dougherty at (571) 272-2022.

/T. M. D./

/Thomas M. Dougherty/

tmd

Primary Examiner, Art Unit 2834

June 18, 2008